again forwards towards their tips, the distance between the horns gradually increasing from base to tip. Well-marked annulations surround the horns for three fourths of their length.

The colour of the cheeks, neck, back, and sides appears to be the isabelline sandy fawn-colour characteristic of many desert forms. Inside of ears, belly, and a patch on the rump, crossing above the tail and running in a point over the ischium into the fawn-colour, white, a black streak lining this patch on each haunch between the white and fawn colours. Spot on nose, above and below the eyes, and tail black.

Col. Grant, who has most kindly supplied me with copious extracts from his note-books, informs me that this Antelope was only met with in Western Kinyenye, in Ugogo; the country inhabited by it he describes as low-lying sandy plains dotted over in some places with euphorbias, dwarf acacias, and stunted baobabs. The chief peculiarity of the country, owing doubtless to its comparatively low level, is the great accumulation of salt, which has of course a marked effect on the vegetation. Water at all times of the year is very scarce, generally entirely absent, the little there is being brackish and undrinkable. As there already exists a Gazelle bearing the name of Capt. Speke* I would propose to name the Ugogo species *Gazella granti*, after his gallant fellow traveller, and trust that before long I may receive specimens to exhibit before the Society, having sent sketches of the head and horns to Lieut. Henn of the Livingstone-search expedition and to Dr. Kirk.

The following are the measurements afforded by Captain Speke and Col. Grant's note-books, compared with similar measurements of an adult male *Gazella sœmmerringii* at present living in the Society's Menagerie:—

	Gazella granti ♂.	*G. granti* ♀.	*G. sœmmerringii* ♂.
Length of horn along curve	26″	15″	13½″
Circumference at base.....	7½	3½	5½
Length of face.....	8	8	7¼
Round the head behind the horns ..	19	16	16½

May 7, 1872.

Prof. Newton, F.R.S., V.P., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of March 1872:—

The total number of registered additions to the Society's Menagerie during the month of March 1872 was 122, of which 6 were by birth, 45 by presentation, 58 by purchase, 8 by exchange, and 5 were received on deposit. The total number of departures during the same

* Blyth, Journal of the Asiatic Soc. of Bengal, vol. xxiv. p. 296.

period by death and removals was 121, showing a net addition of one individual to the collection during the month.

The most noticeable additions were the following:—

1. A Pheasant Coucal (*Centropus phasianus**) from Australia, purchased March 5th, being the first example of this fine species received by the Society.

2. Two Grey Struthideas (*Struthidea cinerea*, Gould) from Australia, received in exchange March 9th. The genus *Struthidea* is a very obscure form of the Passerine Order, the correct position of which is quite uncertain. We may hope that the receipt of these birds, which have never previously reached England alive, will ultimately serve to make us better acquainted with their organization.

3. Five Knob-nosed Lizards, *Lyriocephalus scutatus* (Linn.), from Ceylon, presented by H. N. Mosely, Esq., March 11th, likewise new to the Society's collection.

4. Two specimens of a fine large Red-necked Bustard of the genus *Eupodotis*, from the vicinity of Cape-coast Castle, West Africa, presented, the one by Mr. C. D. O'Connor, the other by H. E. Governor Ussher, March 20th. These birds appear to be referable to *Eupodotis denhami* (*Otis denhami*, Children, App. to Denham's Travels, p. 199); but whether this species is really distinct from the southern *E. caffra*, sive *ruficollis*, I am not at present able to say.

5. On March 20th Mr. A. T. Wise presented to us three small Water-Tortoises of the genus *Clemmys*, which, as he informs me, were procured at Gibraltar, and are of the ordinary species of Southern Spain. On examining these I convinced myself that they were referable to the ordinary *Clemmys leprosa* (*cf.* Strauch, Chelon. St. p. 122) of Southern Europe. But I was much snrprised to find on further examination that one of the surviving specimens of *Emys flavipes* of Dr. Gray (P. Z. S. 1869, p. 643, pl. 50) belonged apparently to the same species; and after further examination I have come to the conclusion that the so-called *Emys flavipes* is merely a synonym of *Clemmys leprosa*.

6.. A Crested Screamer (*Chauna chavaria*) presented March 22th by Arthur C. Maxwell, Esq., being, as I believe, the first example of this species ever received by the Society, although we have had several specimens of the allied *C. derbiana*.

7. A second specimen of *Chauna chavaria*, presented March 25th by Higford Burr, Esq.

8. A Beatrix Antelope (*Oryx beatrix*), deposited March 26th by Mr. Gwyn Jeffreys, F.R.S., F.Z.S., being the survivor of a pair of these animals obtained for Mr. Gwyn Jeffreys by Col. Pelly, H.B.M. Resident at Bushire. The receipt of this animal is of very great scientific interest, as confirming the species established by Dr. Gray (P. Z. S. 1857, p. 157, Mamm. pl. 54) upon an Antelope formerly living in this Society's gardens, and further, as indicating its correct locality, which was previously doubtful. Our present example seems to agree in nearly every respect with Mr. Wolf's figure of the former specimen, and in the distinctions pointed out in Dr. Gray's description.

* *Centropus phasianus* (Lath.): Gould, B. of Austr. iv. pl. 92.

There appear, therefore, to be four well-marked species of this genus of Antelopes, each inhabiting a distinct area, namely:—

1. *O. beatrix*, of Arabia.
2. *O. beisa*, of the eastern shores of the Red Sea.
3. *O. leucoryx*, of Eastern and Western Africa.
4. *O. gazella*, of Southern Africa.

9. A small Penguin captured at Guaycan, in Northern Chili, by one of the Pacific Mail Steamers, and presented to the Society by Major T. G. Sandemann, F. Z. S. This bird I have little hesitation in referring to Humboldt's Penguin (*Spheniscus humboldti*), although it appears to be not quite adult. It is, however, very nearly similar to an example of the same species now in the Society's gardens, which was deposited by Lord Londesborough, F.Z.S., on the 6th of December, 1871.

Mr. Sclater exhibited the skull of one of the specimens of the Hairy Tapir of the Andes (*Tapirus roulini*)*, obtained by Mr. Buckley during his recent expedition to Ecuador, and kindly lent to Mr. Sclater by Mr. E. Gerrard, Junior. Mr. Sclater also exhibited for comparison a skull of *Tapirus terrestris* of about the same age, *i. e.* with the fourth upper molars not yet *in situ*, and pointed out the most obvious differences that distinguish the skulls of the two species.

These were, first, the different form of the nasal bones, which in *T.*

Fig. 1. Fig. 2.

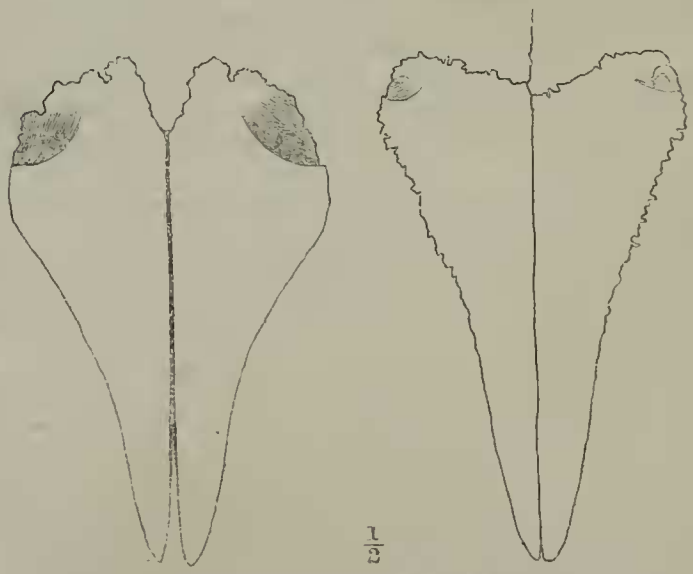

Fig. 1. Outline of nasal bones of *Tapirus terrestris*, reduced ½.
Fig. 2. Corresponding bones of *Tapirus roulini*.

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* *Cf.* former note on this species, P. Z. S. 1870, p. 51.

roulini are longer, narrow more gradually towards their extremities, and are more arched (see figs. 1 and 2); and, secondly, in the much less elevation of the cranial crest in *T. roulini*, the upper surface of this ridge being continued in nearly the same horizontal plane as that of the nasal bones, instead of forming a considerable angle with it. Besides these points, the fronto-nasal suture was nearly straight in *T. roulini*, instead of being deflected forwards between the two nasals as in *T. americanus*, and the deep grooves at each side of the nasal bones were broader in *T. roulini* than in *T. americanus*.

A communication was read from Viscount Walden, F.R.S., President of the Society, containing an Appendix to his paper on the Birds of Celebes, read at the meeting held on the 2nd of May, 1871.

The first portion of this communication contained additional observations upon the species contained in the former list.

The second portion contained a list of twelve additional species, with remarks upon them, thus raising the total number of authentically recorded Celebean birds to 205.

This paper will be published in full in the Society's 'Transactions.'

Prof. Owen read the eighteenth of his series of memoirs on the extinct birds of the genus *Dinornis*, in which the characters of a supposed new species of *Dinornis*, from the south island of New Zealand, allied to *D. crassus*, were pointed out, and the species was proposed to be called *Dinornis gravis*. To this was added a *résumé* of the described species of *Dinornis*.

This memoir will be published entire in the Society's 'Transactions.'

Mr. H. E. Dresser exhibited eggs of the Marbled Duck (*Querquedula marmorata*), lately obtained by Major Howard Irby near Seville.

The following papers were read:—

1. On the Habits of the Swallows of the Genus *Progne** met with in the Argentine Republic. By W. H. Hudson, C.M.Z.S. With Notes by P. L. Sclater.

[Received March 1, 1872.]

Before leaving Buenos Ayres last summer I had begun to write about our Swallows, and in the present communication will speak of

* After examining a considerable series of skins of birds of this genus from various parts of America, I have come to the conclusion that there are only four well-marked forms which merit specific rank, namely:—

1. *Progne purpurea* (Linn.).

Under this head I include all the American "Purple Swallows," of which

the three species of *Progne* found in this country. The *Progne chalybea*, a handsome bird, the largest of its tribe in this neighbourhood, is worthy of the specific name *domestica* given to it by some authors, being preeminently domestic in its habits. It never breeds in banks as *Progne purpurea* often does, or in the forsaken domed nests of other birds in trees, a situation frequently resorted to by the *Hirundo leucorrhoa*, but is so accustomed to the companionship of man as to make its home in populous towns as well as in the country habitations. It makes its appearance here about the middle of September, and apparently resorts to the same breeding-place every year. It is a familiar, noisy, and, in the season of courtship, a pugnacious bird, very common, though not so numerous as the smaller species, which disputes with it the right to the breeding-chinks and holes beneath the eaves. The nest is roughly constructed of dry grass, hair, feathers, and other materials; the eggs white, pointed, and five in number. When the entrance to its building-hole is too large it partially closes it up with mud mixed with straw; if there be two entrances it closes one altogether. It is thus very seldom that this bird requires to use mud in building; and it is the only one of our Hirundines that uses such a material at all. When quitting its nest or on a person's approach, this Swallow utters an exceedingly loud startled cry, several times repeated. It also has a song composed of several agreeably modulated notes, and pitched in that thick rolling intonation which is peculiar to many of the Swallows. This song sounds but low when the bird is close at hand, and yet may sometimes be distinctly heard when the songster appears but a speck in the distance. It is one of the pleasantest songs that heralds our summer, though it is perhaps rendered more so from associations than from intrinsic sentences or melody. The favourite resort of old and young birds when the

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Prof. Baird, in his 'Review of North American Birds,' p. 273 *et seq.*, makes several species (*P. subis*, *P. elegans*, *P. cryptoleuca*, and *P. furcata*). This species extends from the United States down to the Rio Negro. It is not, however, I believe, found on the western side of the Andes southwards of Ecuador, *Progne furcata* of Baird, described from Chili, having been probably received from Mendoza (*cf.* Philippi et Landb. Cat. Aves Chilenas, p. 88), whence I have also received specimens.

2. *Progne chalybea* (Gm.).

This species ranges from Mexico down to Buenos Ayres. I have skins in my collection from these extremes and many intermediate localities, and am not able to distinguish them. I have hitherto usually employed Baird's name *leucogastra* for it. It is the *Golondrina domestica* of Azara, undè *Hirundo domestica*, Vieillot.

3. *Progne dominicensis* (Gm.), of the Antilles, of which the adult male has a blue-black throat like the back. See Baird, Rev. A. B. p. 279.

4. *Progne tapera* (Linn.).

Of this species I have skins from Bogota, Puerto Cabello, Brazil, and Buenos Ayres; so that it likewise has an extensive range. I include under this head *Phæoprogne fusca* and *P. tapera* of Baird.

I have in some cases altered Mr. Hudson's scientific names (taken from former papers of myself and Mr. Salvin) to suit this nomenclature.—P. L. S.

breeding-season is over is to the broad leafy tops of an old ombée tree; and it is usually on these trees that they congregate, in parties of from twenty to a hundred, before leaving us in February.

If the species comprised in each genus or subgenus always resembled each other as closely as the *P. chalybea* and *P. purpurea*, it would be an easy thing indeed to classify; for I am not acquainted with any two distinct species more nearly resembling each other than these birds. The difference in the hue of the under-plumage and a divergence in one of the breeding-habits separates them; otherwise they are identical. Several times I had seen the *P. purpurea* in Buenos Ayres, usually a single individual seen after midsummer, associating with parties of the *P. chalybea*, and in size, language, and flight so exactly like it, that I, not knowing the bird, was almost inclined to think it a rare variety.

On arriving at Bahia Blanca last summer I found the *P. purpurea* quite numerous there, and the only large Swallow in that region, the range of the other species of *Progne* not extending so far south. Again, at Carmen de Patagones I observed great numbers of them. They arrive there late in September, and leave before the middle of February, breed under the eaves of houses or in walls, and build a nest like that of the *P. elegans*. But numbers also breed in the holes in the steep clay- and sand-banks of the Rio Negro. Judging from the appearance of all the breeding-places I examined, I am of opinion that they never excavate holes for themselves, but merely take possession of old forsaken burrows of quadrupeds and of the Burrowing Parrot (*Conurus patachonicus*). I have remarked that the two species described are identical in language; the loud shrill excited scream when the nest is approached, the various other short notes when the bird sweeps about the air, and the pleasingly modulated and leisurely uttered song are all possessed by the two species without the slightest difference in strength or intonation. This circumstance appears very remarkable to me, because, though two distinct species do sometimes possess one or more notes alike, the greater part of the language will always be found different, and also because I have noticed that individuals of one species in different localities do vary more in language than in any other particular.

In widely separated districts on the Pampas I have observed a considerable difference in the notes of birds of the same species, particularly in the songs of song-birds. I paid great attention to this matter while in Patagonia, and in several species common to that region and to Buenos Ayres found so great a difference in voice, that I was fully convinced that birds have a greater tendency to vary in language than in any thing else. It is, however, worthy of remark that it is in resident species only that I have noticed this tendency to vary; the language of a passage-bird seems everywhere the same. I may at another time have more to say on this subject.

The third species, *Progne tapera*, is more slender, and has a greater extent of wing than the two birds described; and instead of the beautiful steel-blue (their prevailing colour), his entire upper plumage is dull dusky brown, the under white. But if these differences

of hue and structure merely serve to show that he is not a very near relation of the two preceding species, those exhibited in his habits remove him very far indeed from them. *Progne tapera* is a very garrulous bird, and is no sooner arrived early in September than we are apprised of the circumstance by the notes which the male and female incessantly sing in concert, fluttering and waving their wings the while, and seeming quite beside themselves with joy at their safe arrival. Their language is more varied, the intonation bolder and freer than that of our other Swallows; the length of the notes can be varied at pleasure; some are almost harsh, others silvery or liquid, as of trickling drops: they all have a glad sound; and many possess that remarkable characteristic of shaping themselves into words or, rather, a fancied resemblance to words.

The *P. tapera* seldom or never alights on the ground or on the roofs of houses, but solely on trees. It breeds only in the *ovens* of the Oven-bird (*Furnarius*); I, at least, have never seen a pair breed in any other situation, after having observed them every summer of my life. An extraordinary habit! for, many as are the species possessing the parasitical tendency of fixing on other birds' nests to breed in, none of them confine themselves to the nest of a single species, except the bird I am describing. So soon as these Swallows arrive, each pair takes up its position on some tree, and usually on a particular branch; a dead twig extending beyond the foliage is a favourite perch. Here they spend much of their time, never appearing to remain long absent from it, and often, when singing their notes together, fluttering about it with a tremulous uncertain flight like that of a hovering butterfly. Twenty or thirty days after their arrival they begin to make advances towards the oven that stands on the nearest post or tree; and if it be still occupied by the builders or rightful owners, after much time being spent in sporting about and reconnoitring it, a feud begins that is often exceedingly violent and protracted many days.

In seasons favourable to them the Oven-birds build in autumn and winter, and breed only in spring; so that their broods are able to fly by the end of October; when this happens the Swallows that breed in November and December quietly take possession of the forsaken fortress. But accidents will happen even to the wonderful fabric of the Oven-bird. It is sometimes destroyed, and must be rebuilt; its completion has perhaps been retarded for months by drought, or by the poor condition of the birds in severe weather; or the first brood may have perished, destroyed perhaps by a Rat or young Opossum. November, and even December, may thus arrive before some of them have hatched their eggs; and it is these unfortunate late breeders that suffer from the violence of the marauding Swallows. Many of the ovens I open contain the eggs of the Oven-bird, buried under the nest of the Swallows; and I have frequently witnessed the wars of these birds with the profoundest interest. After the Swallows have taken up their station near the oven, they occasionally fly towards and hover about it, returning again to their stand. By-and-by, instead of returning as at first, they take to alighting at the mouth of the coveted

home; this is a sort of declaration of war, and marks the beginning of hostilities. The Oven-birds, full of alarm and anger, rush upon and repel them as often as they approach; they retire, but not discomfited, and only warbling out their gay notes in answer to the outrageous indignant screams of the *Furnarii*. Soon they return, the scene is repeated, and this desultory skirmishing often continued for many days. But at length the lawless invaders grown bolder, and familiar with his strength and resources, will no longer fly from the master of the house: desperate struggles now frequently take place at the entrance, the birds again and again dropping to the ground clutched together, and again hurrying up only to resume the combat. Victory at last declares itself for the aggressors; and they busy themselves carrying in materials for the nest, screaming their jubilant notes all the time, as if in token of triumph. Thus are the brave and industrious Oven-birds often expelled from the house that cost them so much labour to build.

It is pleasant, however, to know that this is not the invariable result of the conflict. To the superior swiftness of the Swallow the Oven-bird opposes greater strength, and, it might be added, a greater degree of zeal and fury than can animate its adversary. The contest is thus scarcely an equal one; and the Oven-bird, particularly when its young are already hatched, is often able to maintain its own. But the Swallows never suffer defeat; for when unable to drive the Oven-birds by force from their citadel, they fall back on their dribbling system of warfare, and keep it up till the young birds leave it, when they take possession before the nest has grown cold.

The nest of this Swallow is composed chiefly of large feathers; the eggs are four, long, pointed and pure white.

You will remark that, in all its habits I have mentioned, this bird differs widely from the *P. chalybea*; there is also great dissimilarity in the manner of flight of the two birds. The *P. chalybea* moves with surprising grace and celerity, the wings extended to their utmost; they also love to sail in circles far up in the air, or about the summits of tall trees, and particularly during a high wind. At such times several individuals are usually seen together, and all seem striving to outvie each other in the beauty of their evolutions.

The *P. tapera* is never seen to soar about in circles; and though when hawking about for flies it sweeps the surface of the grass with amazing swiftness, at other times it has a flight strangely slow, and in a fashion peculiar to itself: the long wings are depressed as much as those of a wild duck when dropping into the water, and constantly agitated with flutterings short and rapid as those of a butterfly.

Neither is the bird gregarious like all its congeners, though sometimes an individual associates for a while with a party of Swallows of another species, but this only when they are resting on fences or trees; for as soon as they take flight he again leaves them. They hold no meetings preparatory to migration, but skim about the fields and open plains in un-swallow-like solitude, and suddenly disappear without having warned us of their intended departure.

2. Descriptions of Ten New Species of Land and Marine Shells. By George French Angas, Corr. Mem. Z.S., F.L.S., F.R.G.S., &c.

[Received March 26, 1872.]

(Plate XLII.)

1. Helix (Xanthomelon) lyndi, n. sp. (Plate XLII. fig. 1.)

Shell imperforate, globosely conical, solid, obliquely plicately striated, the upper whorls minutely granulated, the lower whorls distantly and obscurely concentrically striate, light chestnut-colour above, the last whorl brownish olive, with a faint indication of paler bands below the periphery; spire convexly conical, apex obtuse; suture distinct, crenulated; whorls 5, convex, last whorl descending in front, and contracted behind the aperture; aperture oblique, elongately oval, purplish brown within; peristome with the margins approximating, and united by a thin callus finely and sparingly granulated, the right margin expanded and reflexed, light brown; the columellar margin angulated at the fore part, broadly and flatly expanded, and slightly excavated at the upper part, white tinged with light brown and furnished with a few irregular granules.

Diam. maj. 20, min. 17, alt. 21 lines.

Hab. Port Essington.

This shell differs from *H. pachystyla* in the spire being more raised, the aperture being more produced anteriorly, with the margins approaching, and the outer lip expanded and reflexed. It also differs in the character of the sculpture, and in being of a darker colour, and having the aperture livid brown instead of white. This species has hitherto been obtained only from Port Essington, whilst *H. pachystyla* is widely distributed throughout Queensland.

2. Helix (Geotrochus) philomela, n. sp. (Plate XLII. figs. 2 & 3.)

Shell imperforate, trochiform, moderately solid, obliquely obscurely striated, whitish, the whorls ornamented in the middle with a broad fascia composed of numerous purplish chocolate bands with a similar fascia below the periphery, and crossed obliquely with close narrow white lines corresponding with the lines of growth; spire conical, apex obtuse, purplish black; whorls 6, moderately convex, sutures impressed, last whorl rather inflated, descending in front, and contracted behind the aperture, base somewhat flattened; aperture subovate, very oblique; peristome thickened, expanded, and slightly reflexed, the right margin a very little sinuated; columellar margin dilated, and furnished within with a prominent callus terminating abruptly within the aperture; the columella and the interior of the aperture dark chocolate-brown, the inner edge of the lip orange, and the reflected portion white, immediately behind which is a pigment-like black deposit on the whorl.

G.Sowerby lith.

M & N Hanhart imp.

NEW AUSTRALIAN AND OTHER SHELLS.

Diam. maj. 1 inch, min. 10 lines, alt. 10 lines.

Hab. Ysabel Island, Solomon Group.

This species has hitherto been erroneously regarded as the *Helix louisiadensis* of Forbes; but on referring to that author's description and figures in the Appendix to the 'Voyage of the 'Rattlesnake,'' I found it to differ so much as to induce me to examine the typical specimens collected by the late Mr. J. M'Gillivray, and deposited by him in the British Museum; and on comparing the two species I have no hesitation in pronouncing them to be totally distinct, setting apart the wide difference of their localities.

H. philomela may readily be distinguished from *H. louisiadensis* by the absence of the rugose sculpture, by the outer margin of the aperture being scarcely flexuous, by the presence of a conspicuous callus on the columellar margin, and by the entirely different character of painting, and the coloration of the apex, lip, and aperture. I may observe that a shell from the Louisiade Islands, described and figured by Dr. Cox, of Sydney, in these 'Proceedings' for 1871 (p. 323, pl. 34) under the name of *Helix millicentæ*, appears to be identical with the *H. louisiadensis* of Forbes.

3. Thalotia woodsiana, n. sp. (Plate XLII. figs. 4 & 5.)

Shell convexly conical, solid, spirally ribbed, the ribs on the upper whorls beaded, the beading becoming nearly obsolete on the last whorl, longitudinally obliquely striated, black, with irregular longitudinal white markings; spire convexly conical, apex acute, reddish; whorls $7\frac{1}{2}$, slightly convex, the last whorl a little flattened at the base, where the concentric ribs are stronger and more distant, and decussated by radiating striæ; aperture subovate, somewhat contracted; columella furnished with a few tubercles, and a prominent plait near the base; outer lip simple, thickened within, and furnished with tubercles and several elongate denticles.

Alt. 8, diam. 5 lines.

Hab. Portland Bay, Australia.

4. Thracia alciope, n. sp. (Plate XLII. fig. 6.)

Shell oblong-ovate, rather thin, whitish, nearly equilateral, coarsely and irregularly concentrically striated; anterior side ovate; posterior side truncate; dorsal margin posteriorly slightly incurved, anteriorly arcuate; umbones small, subcentral; umbonal ridge raised, obtusely angulate, and slightly curved; ventral margin arcuate; hinge with the cartilage processes small; pallial sinus deep.

Long. $1\frac{1}{2}$ in., alt. 1 in., lat. 6 lines.

Hab. Shark's Bay, Western Australia.

5. Cytherea (Gomphina) moerchi, n. sp. (Plate XLII. fig. 7.)

Shell solid, transverse, triangularly ovate, moderately convex, equilateral, faintly closely concentrically striated, white, with two indistinct radiating bands of a few faint purple effuse blotches, and more or less irregularly ornamented throughout with reddish purple lines,

forming angles of various sizes, the sides having numerous transverse broader markings of a deeper colour; posterior side acuminate; anterior side rounded; basal margin posteriorly flexuous; lunule rather large, elongated, and circumscribed by a slight raised line; umbones central, rather prominent and approximating; interior yellowish white; pallial sinus shallow and rounded.

Long. 1 inch, alt. 8 lines, lat. 6 lines.

Hab. Unknown.

6. Venus gladstonensis, n. sp. (Plate XLII. fig. 8.)

Shell rather solid, orbicularly ovate, turnid, inequilateral, the surface decussated with very close, concentric, elevated laminæ, and radiating, very fine, raised ribs, pale ashy-brown; the sides rounded, the posterior one forming an angle with the dorsal margin, which is convex; basal margin arcuate; umbones anterior, situated at about one-third the length of the shell, tumid; the lunule small, deeply impressed.

Length 1 inch 8 lines, alt. 1 inch 3 lines, lat. 1 inch 1 line.

Hab. Port Curtis, Queensland.

This species is sculptured much in the same way as *Venus laqueata*, Sow.; but the concentric laminæ are very much more numerous, and the radiating ribs more distant and less prominent. In size it is smaller, and in form it is less oblique, and the umbones are not placed so far anteriorly. The specimen described is the only one that has come under my notice, and has been placed by me in the British Museum, together with the other species described in this paper.

7. Cardium (Ctenocardia) victor, n. sp. (Plate XLII. fig. 9.)

Shell quadrangularly cordate, ventricose, equilateral, anterior side rounded, posterior side compressed, slightly concave and angulate, whitish, painted with distant irregular zones and blotches of rosy orange; radiately ribbed, the ribs about 30 in number, narrow and compressed, somewhat broader at the sides, and furnished with erect, compressed, recurved, scale-like spines, the interstices, which are elevated on the anterior side and excavated on the posterior side, are transversely finely imbricate; umbones prominent, close together, and incurved; lunule excavated, not very conspicuous, orange-red; the umbonal ridge strongly marked; interior white under the beak, golden-yellow towards the ventral margin.

Long. 12, alt. 15, lat. 12 lines.

Hab. Mauritius.

The specimen figured is from the collection of Sir David Barclay. It was taken out of the stomach of a fish called in Mauritius "Capitaine," hooked at a depth of 60 fathoms off that island.

8. Axinæa fringilla, n. sp. (Plate XLII. fig. 10.)

Shell solid, triangularly ovate, moderately convex, slightly compressed, and somewhat angulated anteriorly; umbones rather swollen; cardinal area short and narrow, very finely and closely radiately

grooved and concentrically ridged, whitish, painted with close-set, thin, wavy, concentric, orange-brown lines, and on the posterior half of the shell with numerous, irregular, small, blood-red spots; epidermis thin, consisting of short recurved brown hairs.

Long. 10, alt. 10, lat. 6 lines.

Hab. Port Curtis, Queensland, Australia.

9. PECTUNCULUS MONTROUZIERI, n. sp. (Plate XLII. fig. 11.)

Shell solid, obliquely suborbicular, anteriorly subangulate, moderately convex; umbones prominent; radiately ribbed, ribs about 19 in number, a little flattened and somewhat rugose, the interstices finely concentrically laminate; white, sparingly painted with brown lines crossing the ribs, and sometimes flowing into the interstices, especially towards the ventral margin.

Long. 1 in. 2 lines, alt. 13, lat. 1 line.

Hab. New Caledonia.

10. CARDITA RAOULI, n. sp. (Plate XLII. fig. 12.)

Shell truncately ovate, solid, rather compressed, very inequilateral, strongly radiately ribbed, the ribs about 13 in number, ornamented with elevated spines, which are scaly posteriorly, and more numerous, nodulous, and obtuse anteriorly; white, the posterior ribs tinged with rose-colour, and covered throughout with a thin yellowish brown epidermis; umbones not prominent, compressed, terminal; lunule small and deeply excavated; posterior side rounded; anterior side somewhat truncate; dorsal margin convex; basal margin arcuate.

Long. 11, alt. 9, lat. 5 lines.

Hab. South Tasmania; dredged off Cape Raoul by Admiral Loring.

3. Description of a New Species of *Voluta*. By GEORGE FRENCH ANGAS, Corr. Mem. Z.S., F.L.S., F.R.G.S., &c.

(Plate XLII.)

VOLUTA (AULICA) HARGREAVESI, n. sp. (Plate XLII. fig. 13.)

Shell ovately fusiform, reddish brown, with an indication of two darker bands, ornamented with numerous, scattered, longitudinal, and somewhat angular blotches of white; spire rather elevated, apex very obtuse; whorls 5, convex, the last whorl more than two thirds the length of the shell; aperture narrow, pale yellowish, flesh-colour within; columella almost straight, covered with a thin callus, and furnished with four plaits, the upper two large and transverse, the lower two much smaller and more oblique; outer lip simple.

Length 3 in. 10 lines, diam. $1\frac{1}{2}$ inch.

Hab. Locality unknown.

This fine shell, which, as far as I am aware, is unique, has been placed in my hands for description by Mr. Charles Thatcher, at

whose request I have named it after Mr. Hargreaves, a zealous Australian collector of shells.

4. Description of a New Species of *Geotrochus* from the Island of New Britain. By Henry Adams, F.L.S.

[Received April 10, 1872.]

(Plate XLII.)

Upon examining a small collection of shells made by Capt. Ferguson in New Britain and the Solomon Islands, and forwarded to the Society by Dr. Bennett, of Sydney, I found that the marine shells were all well known, being species which are widely distributed in the Western Pacific; but among the land-shells there was one from the Island of New Britain, which Dr. Bennett had correctly indicated as new, and which is stated to have formed part of a necklace worn by a native of that island for ornament. I therefore subjoin a description of it, and have named it, at Dr. Bennett's request, *G. fergusoni*, after Capt. Ferguson, by whom it was obtained.

Geotrochus fergusoni, sp. nov. (Plate XLII. fig. 14.)

G. *testa imperforata, tenuiuscula, conica, oblique flexuose plicato-striata, (sub lente) spiraliter crebre striolata, pallide fulva; spira elevato-conica, apice acutiusculo, sutura filo-marginata; anfr. 7, subplanatis, ultimo non descendente, ad peripheriam acute carinato, basi subplanato; apertura diagonali, triangulari-ovata; perist. late expanso, vix reflexo, albo, marginibus callo tenui junctis, dextro flexuoso, columellari declivo, substricto, triangulatim dilatato, cum basali angulum formante.*

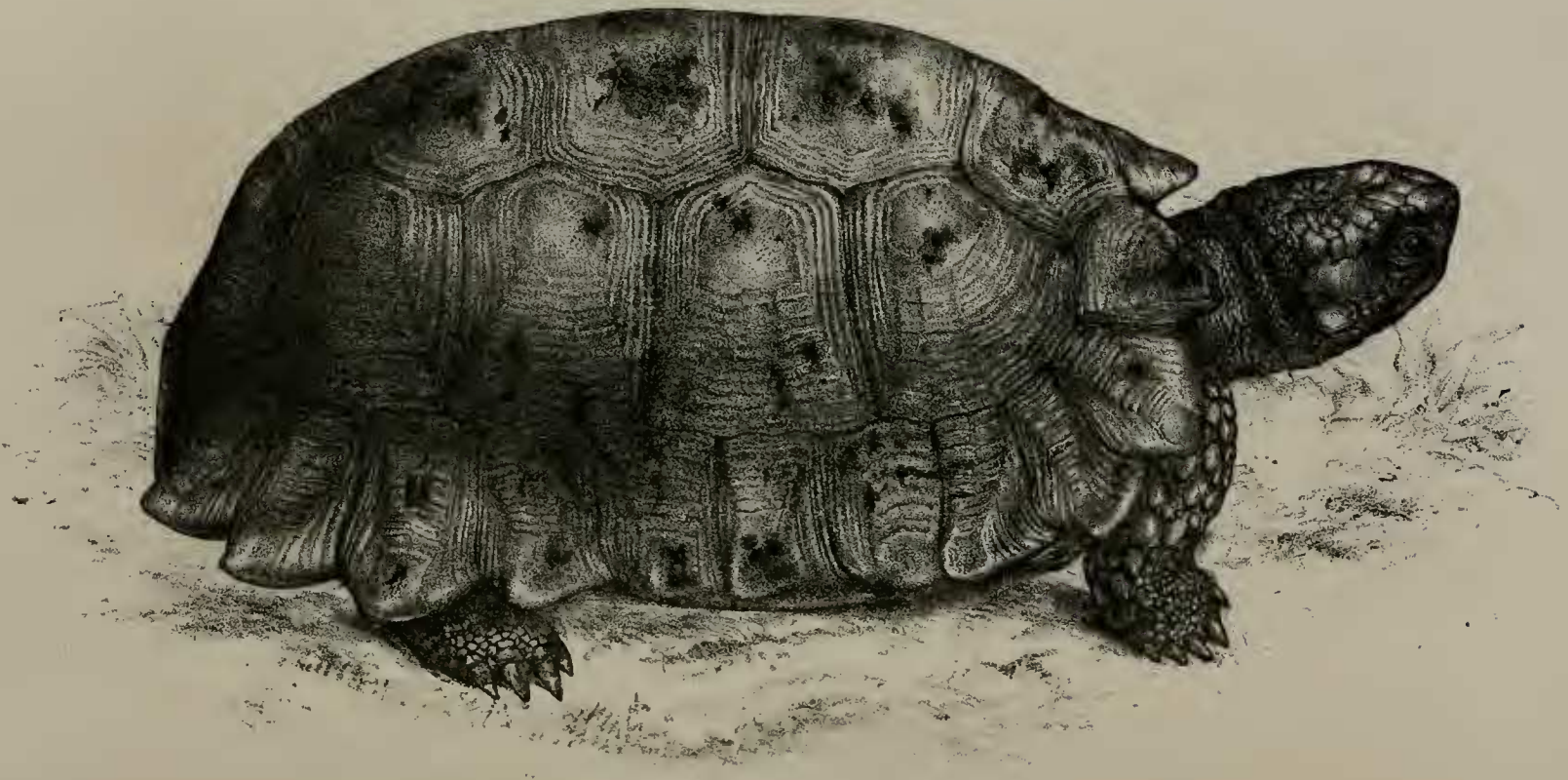
Diam. maj. 18, min. 13, alt. 32 mill.

Hab. The Island of New Britain. (Brit. Mus.)

This species is nearly allied to *G. turris*, H. Ad., from the island of Waigiou, in the Malay archipelago, but differs from it in being smaller and thinner, in the basal whorl being acutely keeled instead of being simply angled, and in the absence of umbilicus or perforation.

DESCRIPTION OF PLATE XLII.

Fig. 1. *Helix lyndi*, p. 610.
2 & 3. —— *philomela*, p. 610.
4 & 5. *Thalotia woodsiana*, p. 611.
6. *Thracia alciope*, p. 611.
7. *Cytherea moerchi*, p. 611.
8. *Venus gladstonensis*, p. 612.
9. *Cardium victor*, p. 612.
10. *Axinæa fringilla*, p. 612.
11. *Pectunculus montrouzieri*, p. 613.
12. *Cardita raouli*, p. 613.
13. *Voluta hargreavesi*, p. 613.
14. *Geotrochus fergusoni*, p. 614.



C Berjeau del et lith

Mintern Bros. imp.

PELTASTES FORSTENI

5. On *Peltastes forstenii*, a Species of Land-Tortoise from Celebes. By Dr. J. E. Gray, F.R.S. &c.

[Received April 1, 1872.]

(Plate XLIII.)

We have received, together with other Reptiles from Celebes, collected by Dr. A. B. Meyer, a Tortoise in spirits which is very like *Testudo elongata* in general appearance, but different from it in many essential particulars, as, for example, the shields on the head, the depressed form of the body, and the total absence of any nuchal plate, showing that it is a most distinct species.

I have no doubt that this Tortoise is a specimen of the *Testudo forstenii* of Schlegel and Müller, mentioned in a note to the 'Verhandelingen over de Natuurl. Geschied. Nederland. Overzee. Bezitt.' Reptilia, p. 30, which, as they state, they intended to describe and figure more in detail; but as I am not aware that the description or figure has ever been published, I think it well to send the Society a note and figure of the species.

Dr. Günther has kindly translated for me the following extract of all the particulars which the authors give of this species:—"Shield oblong and very convex; no sternal shield; hindmost sternal scutes small; tail unusually short, obtusely conical; soles with tubercular scales. Scales along the outer margin of the fore feet large, unguiculate. Snout above with a pair of large scutes; then follows a crown-shield, with a moderate shield on each side; the other shields on the head irregular. Light brown above, with irregular larger and smaller black spots; sternum with a large black spot on each side.—Gilolo."

Testudo forstenii. (Plate XLIII.)

Shell pale yellowish brown, with few black stains, those on the costal and submarginal shields the smallest; oblong, rather broader behind than in front, rather depressed, with a flattened centre to the back. The vertebral plates broader than long, the first shortest, pentangular, produced into an angle in front, the second, third, and fourth rather oblong four-sided, with the middle of the sides rather produced; the last largest, as long as broad. Nuchal plate none. Marginal plates high, the first, second, and third strongly produced, angular; the eighth to eleventh rather produced at the edge and slightly recurved; caudal plate very broad, more than twice as broad as high, rather produced on the hinder edge. The sternum flat, notched in front, and a very large deep notch behind; three front pairs of plates narrow; abdominal plate very large; anal plates small, triangular. Beak strong; upper jaw with three indistinct teeth on the front edge, very obscurely prominent in the middle, between the nostrils; crown covered with symmetrical small shields, the supernasal shields being much the largest; the chin and the throat covered with very minute scales; the fore legs

covered with large prominent scales above and below, which are largest, conical, and most prominent on the outer edge. The hind legs and hinder part of the body covered with unequal shields; tail short, conical.

Testudo forstenii, Schlegel, Verhandl. p. 30, note; Gray, Cat. Shield Rep. Suppl. p. 6.

The examination of the species of *Peltastes* makes me think that the divisions which I proposed in the 'Supplement to the Catalogue' are very natural and useful to be adopted.

They may be divided thus:—

PELTASTES. *Upper beak with three teeth on the front margin.* (Asia.)

* *Beak sharply keeled in front.* P. elongatus (*with a distinct nuchal shield*). P. platynotus *and* P. stellatus (*with no nuchal shield*).

** *Upper jaw bluntly keeled, nuchal shield none.* P. forstenii.

CHERSINELLA. *Beak toothless, rounded in front.* (Africa.) C. geometricus, tentorius, verrouxii, semisulcatus, marginatus, leithii, *and* græcus (*with a nuchal shield*), C. sulcatus (*without a nuchal shield*).

Dr. Meyer has sent home a very young specimen of *Cuora amboynensis* which has three very distinct keels on the back of the shield; our series of this species in the British Museum show that the young is always three-keeled and that the lateral shields gradually disappear as the animal reaches the adult age.

6. Descriptions of three new Species of Marine Shells from Australia. By J. BRAZIER, C.M.Z.S., M.R.S.N.S.W.

[Received March 18, 1872.]

(Plate XLIV.)

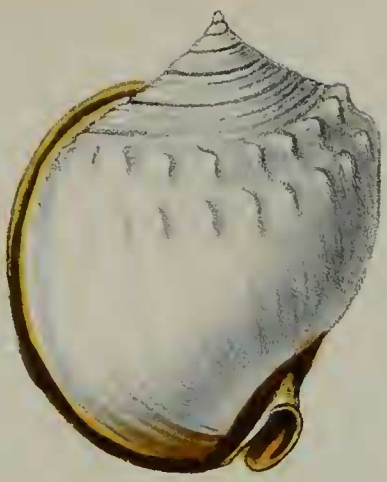
1. CASSIS NIVEA. (Plate XLIV. fig. 1.)

Shell thin, inflated, obliquely striated, chalky white; spire rather elevated, apex acute, suture impressed; whorls 6, moderately convex, spirally ridged next the suture, the last whorl angled above and furnished with a row of 13 pointed nodules or tubercles, then excavated, and immediately below the excavation ornamented with eleven rather elongated rib-like nodules; columella straight, arched and expanded over the perforation; lip thin, not toothed, reflexed, the outer edge as well as the columella tinged with orange; aperture ovately lunate, chalky white within.

Length 1 inch 9 lines, breadth 1 inch 5 lines, height 1 inch 2 lines; length of aperture 1 inch 6 lines, breadth 8½ lines.

Hab. Macquarie Harbour, west coast of Tasmania (*coll. Brazier*).

This species was collected by my friend Mr. W. F. Petterd, jun., of Hobart Town, who obtained it some few years ago at the above



G.Sowerby lith.

M & N.Hanhart imp

NEW SPECIES OF CASSIS & CYPRŒA.

locality; and, so far as I am aware, no other specimens have yet been found. It differs from any of the *Cassididæ* that I have met with in its thin texture and its pure white colour; the deep rounded furrow or excavation at the angle makes it at once a most conspicuous species.

2. Cassis sophia. (Plate XLIV. fig. 2.)

Shell globosely inflated, rather solid; spire moderately raised, apex rather obtuse; whorls $5\frac{1}{2}$, tabulated above, spirally grooved next the suture, the last whorl obliquely striated and transversely distantly finely ridged, more than four fifths the length of the shell, deeply grooved at the base; columella arched, concave, faintly wrinkled, expanded and covering the perforation; whitish, the last two whorls ornamented with rows of large fulvous-red square blotches; lip reflexed and toothed, the teeth on the basal portion nearly extending across the lip, obsolete at the upper part.

Length 2 inches 9 lines, breadth 2 inches 4 lines, height 2 inches.

Hab. Under Grassy Head, mouth of the Macleay River, north of Port Jackson, New South Wales (*coll. Brazier*).

I obtained this example during a stay of one week at the mouth of the Macleay River. I also obtained broken and beach-worn examples at the mouth of the Nambuccra River, twelve miles further north; but from that to the Clarence River, some hundred and fifty miles, I found no more traces of the species.

3. Cypræa coxi. (Plate XLIV. figs. 3, 3*a*.)

Shell oblong-oval, rather thin, base almost flat; sides rounded, anterior end contracted and moderately prominent, posterior end produced; aperture narrow, nearly straight; teeth thick, obtuse, yellowish white, on the outer edge 13 in number and confined to the margin of the aperture, on the columellar side from 15 to 16, the four lower ones rather prominent, the others almost obsolete; light orange-yellow or cream-colour, smooth and polished, ornamented with two faint yellowish-white bands, with a faint indication of longitudinal hair-like lines; interior cream-colour.

Length 10, breadth $5\frac{1}{2}$, height $5\frac{1}{4}$ lines.

Hab. Dupuch's Island, north-west coast of Australia (*coll. J. C. Cox*).

This species was collected by Mr. Thatcher, about four years ago, at the above locality.

7. Descriptions of six new Species of Land-Shells from Australia and Lord Howe's Island. By J. Brazier, C.M.Z.S., M.R.S.N.S.W.

1. Helix (Microcystis) catletti.

Shell imperforate, depressedly turbinate, rather thin, wrinkled on the upper part, rather shining, horny-green, with a pale yellow

band on the periphery and a dark brown narrow band above and below it; spire depressedly conical; whorls $5\frac{1}{2}$, rather flat, the last rather large and convex, slightly angled in the middle, base moderately convex; covered with a horny-green epidermis; aperture angularly lunar; lip simple, acute, columellar margin shortly reflected.

Diam. maj. 4, min. $3\frac{1}{2}$, alt. $2\frac{1}{4}$ lines.

Hab. Lord Howe's Island, off the coast of New South Wales (*coll. Australian Museum*).

This species I have named after Mr. W. H. Catlett, Secretary of the Royal Society of New South Wales.

2. Helix (Conulus) liardeti.

Shell perforated, depressedly globose, very thin, pellucid, shining, faintly and irregularly, closely, obliquely striated, horny-green; spire obtusely convex, suture moderately impressed; whorls $3\frac{1}{2}$, roundly convex, slowly increasing, the last large, convexly rounded, base convex and striated in the same manner as the upper surface; umbilicus minute; aperture oblique, roundly lunate; peristome simple, margins distant, columellar margin recurved and partly concealing the minute umbilicus.

Diam. maj. $\frac{3}{4}$, min. $\frac{1}{2}$, alt. $\frac{3}{4}$ line.

Hab. Picton, New South Wales; under wood in company with *H. morti*, Cox (*coll. Lieutenant Liardet, R.N.*).

This minute species was collected by my friend Lieutenant Liardet, who only found one example during his stay of a month at the locality given above.

3. Helix (Galaxias) liverpoolensis.

Shell perforate, globularly conical, thin, rather strongly rugosely and plicately striated, (under the lens) finely granulated, covered with a horny-yellow epidermis, with a small narrow chestnut spiral band below the suture; spire conoid, obtuse; whorls $4\frac{1}{2}$, convex, the last large and inflated, descending in front, base convex, smoother than the upper surface; perforation small, more than half covered, encircled with a faint broad chestnut band; aperture oblique, roundly lunate; peristome moderately straight, thin on the upper part, thickened and reflected at the columellar margin, which is white.

Diam. maj. 8, min. $6\frac{3}{4}$, alt. $6\frac{1}{2}$ lines.

Hab. Liverpool range, interior of New South Wales (*coll. Australian Museum*).

This shell was obtained by Mr. George Masters during his visit to the above locality. It approaches nearly to *Helix leptogramma*, Pfr., but differs in having a narrow chestnut band just under the suture, with a faint one of the same colour round the perforation.

4. Helix (Zonites) gawleri.

Shell umbilicated, convexly depressed, thin, very closely rugosely wrinkled with oblique striæ to the periphery, interstices smooth; shining, horny-brown, with dark reddish oblique streaks here and there; spire small, suture impressed; whorls $4\frac{1}{2}$, moderately convex,

the last large, inflated in front, depressed above, base convex, yellowish, glossy, sculptured with striæ giving it a wrinkled appearance; umbilicus large and deep, rounded at the edge, with the striæ more distinct and running into the interior; aperture oblique, ovately lunate, interior pinkish; peristome simple, thin, margins nearly approximating, the outer arched, columellar thin and reflexed.

Diam. maj. 8, min. 6, alt. 4 lines.

Hab. Mount-Lofty ranges, near Adelaide, South Australia (*coll. Brazier*).

This species appears to be quite common in a subfossil state in and around Adelaide.

5. Tornatellina inconspicua.

Shell somewhat perforate, rather turreted, very thin, transparent, shining, moderately smooth, with very faint oblique striæ (as seen under the lens), bright yellowish horn-colour; spire very little elongated, obtuse at the apex; whorls 5, convex, impressed at the suture, the last equalling about half of the length; aperture ovate, with a thin central vertical tooth; columella twisted and entering spirally; peristome simple, acute.

Length 1 line, diam. $\frac{1}{2}$; length of aperture $\frac{1}{2}$ line.

Hab. Lord Howe's Island (*coll. Australian Museum*).

6. ? Simpulopsis mastersi.

Shell somewhat globose, thin, very faintly and irregularly transversely striated, marked with irregular reddish- and yellowish-brown flames running rather obliquely; spire very small, conical; suture impressed; whorls $3\frac{1}{2}$, convex, the last very largely and openly dilated; aperture rather large, wide, ovately lunate; columella arched, and not thickened; peristome simple, acute.

Length $3\frac{1}{4}$, breadth $2\frac{1}{4}$; length of aperture $2\frac{1}{4}$ lines, breadth $1\frac{3}{4}$ line.

Hab. Lord Howe's Island (*coll. Australian Museum*).

Only one example of this species was found, in company with *Tornatellina inconspicua*, by Mr. Masters when collecting at the above island.

8. Additional Notes on the Raptorial Birds of North-western India. By A. Anderson, F.Z.S.

[Received April 9, 1872.]

Since forwarding my last paper on the Raptorial Birds of North-western India (see P. Z. S. 1872, p. 68), I have gathered together a considerable amount of valuable information relative to some of the species therein touched upon, which I hasten to lay before the Society.

Following the same order as before, I shall commence with the Imperial Eagle of Jerdon, and proceed to show that under this name

we have two *distinct* birds, viz. *Aquila crassipes* (of Hodgson's unpublished MS. and drawings) and *Aquila bifasciata*.

I should, however, premise by stating that *Aquila imperialis* (*vera*), Cuv., would appear to be quite distinct, as already pointed out by Mr. Howard Saunders*, and that it is questionable whether this species has as yet occurred in India.

My endeavours towards procuring specimens of these two Eagles in *transitional* stages have been crowned with success, and I am now in a position to prove *beyond doubt* that two species have hitherto been confounded in the fourfold stage described by Hume† (as surmised in my former communication), each of them having what appear to me three well-marked stages.

I shall characterize them separately, as briefly as possible.

1. Aquila crassipes (Hodg. unpublished MS.). The *Indian*‡ Imperial Eagle.

Under this time-honoured name§, which I propose being retained for this species, now separated for the first time, Hodgson has figured two lineated birds corresponding with Hume's *first* stage of Jerdon's Imperial Eagle. The figures have been most artistically executed, and agree in every detail with the lineated birds which visit the plains of India in such numbers during the cold season.

During the months of December and January last I was fortunate enough to shoot a pair of Eagles, male and female, passing *direct from the lineated to the black-brown stage, which eventually obtains white scapulars*; or, in other words, Hume's first and *fourth* stages are referable to this species—his second and third to the sister Eagle, which is the true *Aquila bifasciata*.

My friend Mr. Brooks has favoured me with the following detailed description of these two birds:—

"No. 1. *A. crassipes* clearly shows that the lineated bird passes *direct into the black-brown one, which eventually gets white scapulars*. The upper part of the back and lower neck *above* still retain the light-centred feathers so characteristic of the lineated stage. The tail retains some of the plain brown feathers almost without markings of any kind, which tail-feathers are characteristic also of the *lineated* stage. Many of the secondaries and tertials are those of the *young* bird. Below the plumage is a mixture of black-brown and brownish white or fulvous. Many of the feathers about the breast are light-centred ones, as also the neck-hackles; other feathers have the central and apical portions dark brown. I am not quite sure but that the change to black-brown occurs, *not by a moult, but by a gradual change of colour in the feather, commencing with the tips*; sometimes working with regularity up the centre of the feather, at others affecting one side more than the other. The tibial plumes of this bird are fulvous white, mottled with dark brown;

* P. Z. S. 1871, p. 38.
† Rough Notes, Part I. pp. 147–151.
‡ I add the word *Indian* in contradistinction to the *true imperialis*.
§ Hodgson's MS. and drawing is dated 1838.

the general appearance of the abdomen is fulvous white, patched with black-brown.

"No. 2. *A. crassipes* is a much further advanced bird (leading up to *my* second stage), and only a few light-centred feathers can be found. Some of the secondaries, however, and the tertials are those of the *young* bird. Numbers of the neck-hackles are *still unchanged*; *and these are peculiarly those of the lineated stage.* The tail of this example is entirely changed, and is that of the *adult crassipes*, with a broad terminal black band. Below the bird is a mixture of black-brown and fulvous, the former largely predominating; there are a few light-centred feathers still left. The tibial plumes are black-brown. This bird, to me, also appears to show that the *feathers change colour without a moult.* My remark applies to the body-feathers, and not those of the wings and tail."

Having above referred to *three well-defined* stages as appertaining to this Eagle (the first, of course, is lineated throughout), it now remains for me to add that the second phase of plumage is black-brown, with fulvous-coloured head and neck, but *without any white on the scapulary region* (the two birds above described will eventually belong to this stage), and the third the fully adult, viz. black *having white scapulars*, in addition to the fulvous-coloured head and neck—Hume's *fourth* stage, under which description this Eagle has hitherto been considered the true *Aquila imperialis*.

I have added very considerably to my already good series of *Aquila crassipes* in the two last-mentioned stages; and it is interesting to notice the appearance of these white feathers on the scapulars. One youngish example has these feathers, which do not appear with any degree of regularity, particoloured, one side of the shaft being white, the other buff. This, therefore, favours the theory that the feathers in this Eagle change colour without a moult.

The "Striated" Eagle referred to by the Secretary in his recent report on the additions to the Menagerie* is, I am pretty confident, referable to my first stage of *A. crassipes*; and it will be interesting to watch its gradual change to maturity.

2. AQUILA BIFASCIATA, Gray. The Double-banded Eagle.

The double-banded bird, which is equally common with the young of *A. crassipes*, has also been figured by Hodgson, under the name of *bifasciata*.

The whole chain of evidence with regard to the several stages of this Eagle is also beyond dispute. First we have the typical *light-brown* birds with double bars, sometimes white and at others fulvous; second, the uniform brown birds, a shade darker, but *without* bars; and third, the uniform brown birds, with the addition of a fulvous-coloured nuchal patch the size of a crownpiece. Hodgson has also figured a bird corresponding with this latter in every detail; but the plate does not bear any name.

In case it may be necessary to point out the *intermediate* phases of plumage *between* the above *distinct* stages, I need only state that

* P. Z. S. 1871, p. 545.

my collection contains light-coloured examples (referable to the first stage) with the typical double bands, with *one* band, and with *no* band at all, and, lastly, that some of these very birds, while yet in the first stage, have a profusion of *darkish*-brown feathers, so characteristic of the second stage.

Since the separation of these two Eagles according to their plumage, I have noticed that there *is* an appreciable difference, very slight it is true, between the nostrils of the two species, and that the osteological characters too, as far as I have yet gone into the matter, tend to separate them. In the sternum of *A. bifasciata* will be found apertures about the size of a twopennypiece, while in *A. crassipes* these are altogether wanting.

AQUILA HASTATA, Less. (juv.).

In my former notes I alluded to only two distinct stages in the plumage of this Eagle, viz. the "spotted" and "uniform plain brown." I have now to add a description of the *first* or "streaked" stage of the juvenile bird, in which dress both Mr. Brooks and I have obtained some six examples.

Nothing can exceed the remarkable contrast between young *A. nævia*, with its purple-black mantle covered *all over*, more or less, with spots or blotches, and the delicate yellow-brown of *A. hastata*, streaked longitudinally on the under plumage, and having minute specks which are confined entirely to the ridges and bend of the wings.

I have now been able to add this bird to the avifauna of the districts of Cawnpore, Etawah, and Mainpuri; so that it is by no means the rarity now that it was considered only a short time ago.

Description of a typical juvenile bird.—The young bird is generally of a pale yellow-brown, and the lower surface from breast downwards is extensively streaked with fulvous white. The secondaries and tertials are *profusely barred*, as also the tail to the very tip, which is pale or whitish. The carpus and ridges of the wing are profusely blotched with fulvous white. In some specimens of the juvenile bird these spots are either very minute or entirely absent; the amount of spotting, therefore, cannot be a true index of age. Again, in some examples there are neither spots on the wings nor any striation on the lower plumage; but these may be passing into what I have described as the *second* or "spotted stage," when the bird will assume a darker brown colour, and the spots on the wings will then appear with a more decided character.

The head of the young bird is of a uniform pale brown, without any light tips to the feathers, which older birds frequently have. The terminal upper tail-coverts are brownish white, the ends being almost quite white; these are barred on the outer webs with pure white.

The lining of the wing is generally fulvous white, mottled with brown. The tarsus is dull brownish white, slightly freckled with pale brown; the tibial plumes are brown, a good deal mottled with brownish white.

The perfectly *adult* bird (my third stage) is of a uniform dark

hair-brown and *entirely spotless*; the wings and tail also are free from bars, which are so characteristic of the younger stage. In this stage it strongly resembles pale specimens of *A. nævia*; and any one not acquainted with the very different structure of the two birds might mistake it for a small adult of that species.

EUTOLMAËTUS BONELLII, Temm.

In reference to the tree-nesting propensity of this species, previously alluded to (p. 76), I have only to add that I found two nests this season, both of them built on lofty peepul trees. They each contained a pair of eggs, remarkable for being well stained with decayed vegetable matter, notwithstanding they were quite fresh, and for the absence of all colouring matter.

The nests measured respectively $3\frac{1}{2}$ feet $\times$ 2, and $4\frac{1}{2}$ feet $\times$ $1\frac{1}{2}$. Both of them were perfect plane surfaces, with no perceptible depression in the centre; and in both cases fresh green twigs were used as a nest-lining. The first nest contained two mango twigs, measuring respectively $11\frac{1}{2}$ and 8 inches long, with thirteen and ten green leaves adhering to them. These were *nibbled* all over by the birds while performing the task of incubation; but with what object, it is impossible to conjecture.

The season of incubation is confined to the coldest time of the year, viz. from about the 25th of December to the end of January.

The first nest above alluded to was watched by me while in the course of construction; and I noticed one morning that the female bird was still in the immature garb. I was fortunate enough to shoot her off the nest; and her general plumage below is what I take to be about three years old: the breast has become white, but the lower belly and thighs are still of a buffy fawn-colour.

MILVUS ——?

The small Marsh-Kite I have before referred to (p. 79) first made their appearance in ones and twos before the end of September; and they were then terribly wild, just as much so as *Milvus major*. Later in the season (December and January) they became gregarious, and confined themselves to marshes and grassy swamps. As the season advanced, so their wariness seemed to wear off; and as the country dried up they began associating with the village Kites, till they became just as audacious as their allies *M. govinda*.

I have seen as many as fifty of the small Marsh-Kite on the wing at a time; and the conspicuous white or pale-buff patches under the wings suffice to distinguish them from the village Kites at a glance.

Early in the season the Marsh-Kites appear to keep to open country, and then do not intermingle with the other species; but I have come across numerous places where villages are situated on the banks of swamps; and then, of course, both kinds are always to be seen together. They have now (14th March) nearly vanished, and by the end of the month I do not think one will be left.

9. Description of a young Tapir from the Peruvian Amazons. By Dr. J. E. Gray, F.R.S. &c.

[Received April 2, 1872.]

(Plate XLV.)

There is a skin of a young specimen of Tapir in the British Museum, brought by Mr. E. Bartlett from the Peruvian Amazons, which is differently coloured from any of the other specimens in the collection, and certainly indicates a peculiar local variety, if not a distinct species. The upper part of the body is dark brown, and white beneath; the back is marked with five or six narrow white stripes, extending from the shoulders to the hinder part of the back, where they unite, forming parts of circles; the three upper ones on each side unite on the hinder part of the back, the third pair being united just above the base of the tail; the upper stripes are generally continued, or only once or twice interrupted in their length; the lower ones are more broken; and the lowest on the sides of the belly are formed of more or less elongate stripes; there is generally between the pale stripes upon the upper part of the body a more or less regular series of small white spots, those between the two upper stripes being on the vertebral line. The upper part of the head pale brown, with some minute white spots on the middle of the face before the eyes; the temples, the cheek under the eye, and the sides of the hinder part of the head with rather larger white spots; these spots become rounder and larger on the sides of the hinder part of the head, and at length form elongated white stripes on the pale brown sides of the throat; the ears have a distinct white edge, and some distinct white spots on their outer side. The legs are marked with white spots to the end of the toes, those on the upper part of the fore legs being large and oblong, and of very different sizes. The middle of throat, belly, and hinder edge of thighs white.

This animal is, in the number of its stripes and its spotted feet, most like the young of *Tapirus terrestris* of the plains of Northern Brazil; but it differs from that in the stripes being much more regularly longitudinal and continuous, and in the top of the head having only a few minute spots before the eyes, the rest being all brown. I should propose to call this *Tapirus* (*terrestris*) *peruvianus*.

It is represented in the accompanying figure (Plate XLV.).

The skull of this specimen was obtained at the same time with the skin, and is in the British Museum. It is in a very young state, showing all the sutures, and with three molars in the upper jaw and two in the lower jaw developed. The crown is gradually rounded from the base of the nasal bone; but unfortunately we have no other skull of the genus in the Museum to compare it with.

Mr. Edward Bartlett has kindly sent to me a skull, now in the British Museum, which he says is that of the mother of the young animal the skin and skull of which are above described. They were

C.Berjeau del et lith.

MintornBros.imp.

TAPIRUS PERUVIANUS, jr.

taken at Santa Cruz, Huallaga River, Eastern Peru, on the 31st of May 1868.

I cannot see any essential difference between the adult skull of the female and other skulls of *Tapirus terrestris* in the British Museum.

The British Museum has also procured from Mr. Bartlett a fully developed skull, but without quite fully developed teeth, of a Tapir from Eastern Peru, which differs only in the nasal bones being rather broader from the skull of the adult female above noted.

There is also a nearly adult skull in the British Museum, obtained by Mr. Edward Bartlett in an Indian house, in 1866, at Chyavitos, on the Peruvian Amazons, which appears to belong to the same species as the two former, but has still shorter and broader nasal bones. All these skulls have the raised arched ridge along the middle of the crown.

The young Tapirs in the British Museum from various localities, as above recorded, may be synoptically divided thus:—

1. *The feet and lower part of the legs brown, with large white spots of unequal size.*

A. The upper part of the head brown, covered with small white spots; body with irregular white stripes, and white lines or spots. *T. terrestris*, p. 492, Plate XXII. fig. 3. (W. Indies?)

B. Top of the head brown, with some small white spots before the eyes; sides with a regular stripe, sometimes broken, and with a series of small white specks between the stripes. *T. peruvianus*, Plate XLV. Peruvian Amazons.

2. *The feet and legs and upper part of the head and nape uniform dark brown, without any pale spots.*

A. Sides of the back with longitudinal stripes and with small unequal spots on the sides; belly dark-coloured. *T. ænigmaticus*, p. 490, Plate XXII. fig. 1. Ecuador.

B. Sides of the body with stripes of unequal length, and a few spots obliquely disposed; neck and belly yellow. *T. ecuadorensis*, p. 492, Plate XXII. fig. 2. Ecuador.

10. On some new or rare Birds' Eggs.

By Henry Buckley, F.Z.S.

[Received May 7, 1872.]

I have pleasure in bringing before the Meeting the eggs of three species of North-American birds, which I believe have never previously been exhibited, although Professor Newton, on one or two former occasions, has given some notes on one of them (the Swallow-tailed Kite); but I still trust that my brief remarks even on that species will not be without interest.

Falco polyagrus (Cassin). (Prairie Falcon.)

This egg, as might be expected, closely resembles that of *Falco jugger*, and was found by my correspondent Mr. L. E. Ricksecker at the head of Echo Cañon, in Watsatch Mountains, Utah, U. S., May 23, 1868. He writes me:—

"The nest was placed in a niche at the top of an isolated rock about 20 feet high, and had evidently been used by the same or by some other pair of birds for a number of years, as it had the usual appearance of old Crows' and Hawks' nests. It was much flattened, and the materials were earth and sticks. It contained four eggs, which were nearly fresh, incubation having barely commenced. The altitude of the Cañon at the place where the nest was located is over 6500 feet above the level of the sea; and the weather even at that late date had not become settled, snow-squalls being of frequent occurrence for more than another week.

"I spent the whole summer of 1871 near this place, and I believe we had some frost during every month. I saw both the parent birds, and secured the male, which I forwarded to the Smithsonian Institution; and Professor Baird told me it was the first adult male skin he had received."

Elanoïdes furcatus (Linn.). (Swallow-tail Kite.)

Of this species I have the pleasure of exhibiting seven eggs taken from four different nests. They were collected in Black-Hawk County, in the State of Iowa, U. S. A.; and my correspondent informs me that in that locality the eggs are found from May 22nd to June 8th; and, so far as his experience tells him, the complement of eggs is always two.

The nests are built of sticks and moss, and are generally placed in high trees.

Ictinia mississippiensis (Wilson). (Mississippi Kite.)

This rare egg was collected by one of the correspondents of the Smithsonian Institution, Washington, U. S. A. The nest, composed of only a few sticks, contained two eggs, and was found on the 12th of June in a tree about 15 feet high; and one of the parents was secured.

11. Contributions to a General History of the *Spongiadæ*. By J. S. Bowerbank, LL.D., F.R.S., &c.—Part III.

[Received April 11, 1872.]

(Plates XLVI.–XLIX.)

Geodia tuberculosa, Bowerbank. (Plate XLVI.)

Sponge massive, sessile, somewhat cup-shaped. Surface abounding in large tubercular prominences; furnished abundantly with ex-

Geodia tuberculosa.

W. Ons Aldous del. et lith.

W. West & C° imp.